IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

Petrus Antonius VAN NIJNATTEN Atty. Ref.: 1328-26; Confirmation No. 3794

Appl. No. 10/563,862 TC/A.U. 1794

Filed: May 12, 2006 Examiner: Gugliotta

For: EMISSION ENHANCING COATING, ARTICLE TO WHICH THE COATING IS APPLIED, AND METHOD FOR APPLYING THE COATING TO A SURFACE

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DRAFT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

DECLARATION UNDER 37 CFR §1.132

I, Petrus Antonius VAN NIJNATTEN, hereby declare and state as follows:

1. That I am the inventor of the subject application, a citizen of The Netherlands and my address is as stated in my declaration under Rule 63 (37 CFR §1.63) of record in the subject application.

2. That I am employed by Nederlandse Organisatie voor toegepast-natuurwetenschappelijk Onderzoek TNO and have assigned my rights to the subject application to my employer.

3. That I am familiar with the Official Action of October 25, 2009 and in particular with US patent 6,125,598 to Nelson as well as the published US application of Buhay et al US 2004/0106017 A1.

4. That I have carefully noted the suggestion in the Official Action of modifying the thickness of specific layer in the stack described by Nelson which is to be counter balanced with maintaining favorable anti-reflection properties described in Nelson.

5. That the following experiment was conducted by me or under my direction and control:

The absorption of two coating stacks have multiple conductive and non-conductive layers have modeled, where the thickness of the non-conductive layers were varied as shown in the attached Annex. The coating stacks had from bottom (solar cell substrate) to top (air) the following sequential layers:

- 200 or 1000 nm SiO_2
- 35 nm ITO (tin-doped indium oxide)
- 200 or 1000 nm SiO_2
- 17 nm ITO
- 200 or 1000 nm SiO_2
- 5 nm ITO

In the first example each non-conductive SiO_2 layer in the coating stack had a thickness of 200 nm. In a second example each non-conductive SiO_2 layer in the stack had a thickness of 1000 nm. A graph of the modeled results are shown in the Figure of the attached Annex. As I found and as this Figure shows, the absorbance properties strongly differ. In particular, for wavelengths about 5 μm the absorbance differs by as much as 50-60% when the thickness of the SiO_2 layer is decreased from 1000 nm to 200 nm.

Based on my experience with emission enhancing coatings and in particular solar cells, in my opinion these results show that adjustments in layer thicknesses are expected to have drastic effects on the overall performance of the coating, in particular the anti-reflection properties. Based on this information I would not be inclined to adjust the layer thicknesses in a coating stack.

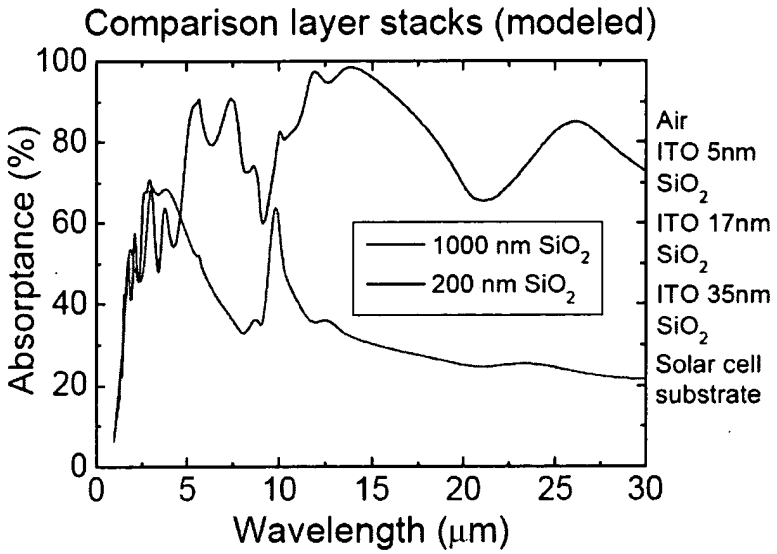
6. I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are

punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

_____
Petrus Antonius VAN NIJNATTEN

DATE: _____

ANNEX



Optical model:

Air
ITO 5nm
SiO_2 200nm / 1000nm
ITO 17nm
SiO_2 200nm / 1000nm
ITO 35nm
SiO_2 200nm / 1000nm
Solar cell substrate (ZnO coated Si)

ITO = tin-doped indium oxide